REMARKS

The Office Action mailed April 20, 2007, has been carefully reviewed and, by this Amendment, Applicant has amended claims 11, 20, 41, 45, 48, 51 and 55, and added claims 63-68. Claims 1-20 and 31-68 are pending in the application. Claims 1, 11, 45, 63 and 68 are independent. Claims 1-10 have been withdrawn.

The Examiner objected to claims 13 and 59 as containing informalities, particularly a lack of antecedent basis for "said first waveguide". Applicant requests reconsideration and withdrawal of this objection, noting that in each of claims 13 and 59, the limitation of "a first waveguide" is introduced in the second line of the respective claim, providing antecedent basis for "said first waveguide" as it appears in the last line of each of these claims.

The Examiner rejected claims 11, 12, 19 and 57 under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 4,978,188 to Kawachi et al. ("Kawachi"), and rejected claims 11-20, 45-56 and 58-62 under the same statutory section as being anticipated by U.S. Patent No. 5,745,618 to Li. Under 35 U.S.C. 103(a), the Examiner rejected claims 31-44 as being unpatentable over Li in view of EP 1,045,263 ("EP '263").

As set forth in each of independent claims 11 and 45, the present invention is directed to an optical component and a method of manufacturing an optical component, respectively. The optical component comprises a combination of planar waveguides on a substrate, each waveguide having a core region pattern surrounded by lower and upper cladding layers and a width of the transversal cross-section. The core region pattern is formed in a layer applied to the lower cladding layer supported by the substrate and the upper cladding layer is applied to cover the core region pattern and the lower cladding layer. The combination of waveguides includes a waveguide core section comprising substantially parallel waveguide core sections fully or partially connected to waveguide core sections that diverge from the parallel sections, or the combination of waveguides comprises merging waveguide core sections, where the sum of the width of the waveguide sections is substantially constant along the waveguide core sections. The optical component further comprises at least one *solid* void reducing or stress reducing structural element located in the vicinity of the waveguide core sections. The method claim 45 shares the same limitations as in claim 11 by carrying out at least a series of specified steps.

Kawachi discloses an integrated optical component with stress adjusting grooves along the waveguide that are supposed to provide changes in the birefringence value of the optical waveguide (see Fig. 5B and column 12, lines 10-13). However, Kawachi does not disclose the use of *solid* void reducing or stress reducing structural elements which, according to the present invention, are significantly easier to produce as they may be formed in the same processing step as the waveguide cores (see the present specification on page 7, lines 23-27). Accordingly, Kawachi does not teach or suggest the limitations of claims 11 and 45.

Li discloses optical components including an MxN star coupler (Fig. 2), a Dense WDM (Fig. 7) and a power splitter (Fig. 8), all of which comprise a slab constituting a "planar area, which is large compared to the area of an individual waveguide of the same length, that supports light wave transmission between input and output waveguides" (column 1, lines 33-37). Such a slab is known in the prior art but, according to Li, such devices may have significant insertion loss due to scattering from the gaps between the array waveguides (see column 1, lines 44-50). To solve this problem, Li discloses a transition region including a number of silica paths adjacent to the slab that allegedly provide a reduction of this portion of the insertion loss (see column 2,

lines 1-12). The Examiner stated that these silica paths may well be stress/void reducing and therefore they meet the limitation of the presently claimed application relating to stress reducing structural elements. Applicant respectfully does not agree.

In contrast to Li, none of the components discussed in the description of the present invention comprise a slab waveguide or any gaps similar to those presented by Li. In addition, independent claims 11 and 45 have now been amended to clarify that the claimed invention includes at least one *solid void reducing and/or stress reducing structural element* in an optical component having a waveguide layout similar to those of planar splitters and couplers, i.e. components comprising a combination of waveguides that include either substantially parallel waveguide core sections and waveguide core sections that diverge from these substantially parallel sections (see page 9, lines 10-14), or merging waveguide core sections having a merged core section (see page 9, lines 16-19 as a y-section comprising all three parts of the "y"). Claims 11 and 45 also set forth that the width of the merged core section and/or the sum of the widths of the core sections is substantially constant along the waveguide core sections, i.e., there are no gaps in the stress/void reducing structural elements (see page 23, lines 12-31 for a discussion of the term "width"). Waveguide structures

as are set forth in claims 11 and 45 will have little or no loss due to the scattering mechanism described by Li in column 1, lines 44-50. Accordingly, the teaching of Li, which is directed to solving the problem of scattering due to gaps, would not provide a person of ordinary skill in the art with any suggestion leading them to the structure claimed in the present application. Accordingly, claims 11 and 45 are patentable over Li.

With regard to the rejection of claims 31-44 based on Li and EP ´263, Applicant submits that EP ´263 also does not teach or suggest the deficiency of Li set forth above in connection with claim 11 on which claims 31-44 depend. Therefore Li in view of EP ´263 does not teach or suggest the limitations of claims 31-44.

For at least the foregoing reasons, claims 11 and 45 are patentable over the cited art. Claims 12-20, 31-44 and 46-62 are also in condition for allowance as claims properly dependent on an allowable base claim and for the subject matter contained therein.

New independent claim 63 is in condition for allowance for at least the same reasons as claim 11, and further as positively excluding the presence of gaps by limiting the outline curves of the optical component to being monotonically decreasing or increasing.

New independent claim 68 is also in condition for allowance for the reasons already discussed, being directed to an optical component having stress/void reducing structural elements placed in the vicinity of a waveguide which is a *splitter* or a *coupler*. Consistent with the well known meaning of these terms in the art, splitters and couplers have no gaps comparable to those discussed in and addressed by Li and therefore are not addressed or contemplated by Li.

With this amendment and the foregoing remarks, it is respectfully submitted that the present application is in condition for allowance. Should the Examiner have any questions or comments, the Examiner is cordially invited to telephone the undersigned attorney so that the present application can receive an early Notice of Allowance.

Respectfully submitted,

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Date: September 20, 2007
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